Purposefulness and Daily Life in a Pandemic: Predicting Daily Affect and Physical Symptoms during the First Weeks of the COVID-19 Response

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Abstract

Objective: Sense of purpose has been associated with greater health and well-being, even in daily contexts. However, it is unclear whether effects would hold in daily life during COVID-19, when people may have difficulty seeing a path toward their life goals. Design: The current study investigated whether purposefulness predicted daily positive affect, negative affect, and physical symptoms. Participants (n = 831) reported on these variables during the first weeks of the COVID-19 response in North America. Main Outcome Measures: Participants completed daily surveys asking them for daily positive events, stressors, positive affect, negative affect, physical symptoms, and purposefulness. Results: Purposefulness at between- and within-person levels predicted less negative affect and physical symptoms, but more positive affect at the daily level. Between-person purposefulness interacted with positive events when predicting negative and positive affect, suggesting that purposeful people may be less reactive to positive events. However, between-person purposefulness also interacted with daily stressors, insofar that stressors predicted greater declines in positive affect for purposeful people. Conclusion: Being a purposeful person holds positive implications for daily health and well-being, even during the pandemic context. However, purposefulness may hold some consequences unique to the COVID-19 context, which merit attention in future research.

KEYWORDS: sense of purpose; positive events; daily stressors; COVID-19; daily affect
The COVID-19 pandemic has restructured our daily lives in seemingly immeasurable ways, which may impact our health for years and even decades to come. Understanding how people react to their daily events has clear importance, with findings consistently demonstrating that how individuals react to their daily stressors has consequence for immune functioning (Hawkley & Cacioppo, 2004), inflammation (Sin, Graham-Engeland, Ong, & Almeida, 2015), cardiovascular health (Sin, Sloan, McKinley, & Almeida, 2016), and even mortality risk years later (Mroczek, Stawski, Turiano, Chan, Almeida, Neupert, & Spiro, 2015). More recently, work also demonstrates the importance of studying reactivity to positive events, insofar that showing greater affective changes in response to these events could foretell later negative health issues (Sin & Almeida, 2018). This research has led to a large literature focused on potential factors that play into our understanding of who reacts more to daily events. However, the current climate requires a reconsideration of these factors, as the pandemic has created not only new forms of stressors, but even has reshaped the types of stressors commonly examined. For instance, work-related stressors now involve new environments and “co-workers” with the work-at-home requirements. In addition, family-related stressors now involve trying to stay connected with individuals from afar or perhaps dealing with new living arrangements that bring everyone closer together.

As such, the current study sought to investigate the role of purposefulness in daily pandemic life, given that sense of purpose at the trait-level has been shown to moderate linkages between daily affect and the experience of both daily stressors (Hill, Sin, Turiano, Burrow, & Almeida, 2018) and positive events (Hill, Sin, Almeida, & Burrow, 2020). Although purposeful individuals appear to respond less severely to their daily events, there are reasons to reconsider these findings in the current context. Central among these possibilities is the fact that the
pandemic may hold significant consequences for leading a purposeful life, given both that it may redefine what it means to feel a sense of direction, and that the pandemic has disrupted the routineness of environments that may have given rise to individuals’ belief that they were progressing toward their life goals. However, before considering how the pandemic may impact purposefulness, it is worth first discussing how and why a sense of purpose influences both health and daily life.

**Sense of Purpose and Health**

Sense of purpose, defined as the perception of having broader goals and a direction that guides one through life (Ryff, 1989), has been linked to a wide array of positive health outcomes across the lifespan. Individuals who report a greater sense of purpose are at reduced risk for later cardiovascular events (see Kim, Delaney, & Kubzansky, 2019 for a review), disability (Boyle, Buchman, & Bennett, 2010), and even early mortality (Cohen, Bavishi, & Rozanski, 2016). One rationale for these findings is that individuals with a sense of direction may be more likely to act in ways that promote their ability to continue toward that direction. Put differently, purposeful people should be more focused on their health and well-being in order to scaffold their continued progress toward their goals for life. In support, sense of purpose has been linked to multiple health behaviors both cross-sectionally (Hill, Edmonds, & Hampson, 2017) and longitudinally (Kim, Shiba, Boehm, & Kubzansky, 2020). Another pathway discussed in greater detail below is that sensing a broader life direction may help people be less reactive to their daily events (Hill et al., 2018; Hill et al., 2020), presumably because they have a greater ability to focus more on the path ahead. Most of the literature linking purpose and health has focused on sense of purpose as a trait-like construct, rather than purposefulness, the label we use herein to describe the less stable component of purpose that may fluctuate more day-to-day. As such, work is needed to
examine how between- and within-person differences in purposefulness are linked to health outcomes.

It is worth noting that the current investigation, and the explanatory pathways above, focuses on sense of purpose (and purposefulness) rather than meaning in life, a related yet empirically distinct construct (see Costin & Vignoles, 2020; George & Park, 2013). A primary reason is that these constructs may hold differential implications during a pandemic context. Indeed, one would expect that individuals may report differently regarding how purposeful they were that day, relative to whether they felt their lives were coherent and had significance during a global pandemic, two central components to a sense of meaning (Costin & Vignoles, 2020; Martela & Steger, 2016). Recent research has demonstrated that individuals who reported the world was more orderly and explainable tended to report less COVID-19 stress, and greater meaning during the pandemic (Trzebiński, Cabański, & Czarnecka, 2020), supporting the notion that reports of meaning at this time may be influenced by multiple components beyond one’s purposeful direction. As such, although past work has examined daily meaning (e.g., Machell, Kashdan, Short, & Nezlek, 2015; Newman, Nezlek, & Thrash, 2018; Steger & Kashdan, 2013), the current study specifically focused on whether participants felt purposeful in their daily lives. In so doing, this research provides one of the first efforts to investigate daily purposefulness, which is important given the literature showing that purposeful people may react differently to their daily lives.

**The Role of Purposefulness in Daily Life**

Multiple experimental and daily diary studies have demonstrated linkages between sense of purpose and attenuated reactivity to events. First, purposeful individuals appear less reactive to specific events and stimuli. For instance, individuals with a greater sense of purpose showed
less negative affective reactivity to naturally occurring changes in ethnic composition of passengers during public transport (Burrow & Hill, 2013). Similar results have been found when asking people to read narratives about a challenge to their group majority status, insofar that purposeful individuals reported less negative affect in that experimental condition (Burrow, Stanley, Sumner, & Hill, 2014). Moreover, one study found that sense of purpose predicted more adaptive emotional recovery after being presented with emotionally charged stimuli in the laboratory (Schaefer, Boylan, Van Reekum, Lapate, Norris, Ryff, & Davidson, 2013).

Second, daily diary studies also point to the relevance of studying purpose. Indeed, on days with a stressor, purposeful individuals are less likely to report increases in negative affect and physical symptoms (Hill et al., 2018). Similarly, on days with a positive event, purposeful individuals were less likely to report exacerbated increases in positive affect (Hill et al., 2020). Both of these studies examined baseline or “trait-like” measures for sense of purpose predicting daily affect. Although studies focused on daily purposefulness are limited, work from that domain also shows a link between daily purpose and both reduced daily distress and anxiety (Kiang, 2012).

Regarding potential rationale for these findings, two literatures are particularly valuable to consider. To start, the nature of purposeful living may help individuals “stay the course” more than their counterparts. Indeed, having a purpose in life has been described as a self-organizing aim that guides individuals in their daily decisions, allowing them to adaptively allocate psychological and physical resources to strive toward goal progression (McKnight & Kashdan, 2009). In support, research finds associations between sense of purpose and both reports of personal agency and the perceived ability to deal with obstacles (Bronk, Hill, Lapsley, Talib, & Finch, 2009). Moreover, it has been suggested that individuals should find a purpose for life that
is not “achievable” in a tangible sense, in order to allow for continued pursuit throughout the lifespan without the existential concern of what comes next after achievement (Damon, Menon, & Bronk, 2003). As such, having a purpose may lead individuals to expect positive events to occur now and into the future, making them less reactive to any individual event compared to someone without a clear lifelong aim.

Measures for sense of purpose typically do not ask participants directly if they have a purpose, and thus it also is worth considering the nature of feeling purposeful. To this end, researchers have underscored engagement in meaningful life events as holding a central connection to purposeful living, and purpose measures on this front have been associated with not only less stress, but also greater optimism and reduced hostility (Scheier et al., 2006). These findings underscore another route by which purposefulness may influence event reactivity, namely that purposeful individuals may be less prone to anger when faced with adversity and instead maintain a more optimistic mindset, perhaps by focusing instead on engaging with worthwhile and valued activities. A burgeoning literature points to the health benefits associated with greater engagement in personally worthwhile activities (Steptoe, 2019; Steptoe & Fancourt, 2019), which appears to hold public health consequences at the societal-level as well (Hill et al., 2019).

**Purpose during a Pandemic**

One concern then is what happens when people may have limited access to said worthwhile activities? Given disruptions to seemingly every domain of life, researchers have noted the potential susceptibility for purposelessness during the pandemic (Burrow & Hill, 2020; Hill, Lewis, & Burrow, 2020). The potential impact is made evident when one considers the different purposes individuals report for life. For instance, research suggests that individuals
often report life goals focused on helping others in need, occupational achievement and success, as well as producing artistic works to showcase to others (Hill, Burrow, Brandenberger, Lapsley, & Quaranto, 2010). Clearly all of these pursuits are greatly impacted by policies focused on social distancing, working-at-home, and avoiding large gatherings.

Moreover, as noted earlier, events in these domains of life – both positive and stressful – are likely to take greatly different forms during the time of pandemic response. Presumably the motivations and thresholds for reporting work, financial, and health-related stressors are distinct from before, as are those for what counts as a positive social interaction or event at home. As such, not only may people be at risk for changes in purposefulness, but the pandemic also shifts the contexts in which purposeful individuals were previously able to remain less reactive and stay the course. Accordingly, it is unclear whether the benefits of purposefulness hold during a pandemic, or even if trying to remain purposeful could hold consequences for health and well-being at a time when goal-directed action may be thwarted.

**Current Study**

The current study thus investigated whether purposefulness maintains the ability to mitigate the health and well-being impacts of daily events in the wake of COVID-19. Participants were asked to report on their daily lives during the weeks immediately following the North American outbreak of COVID-19, with respect to their daily stressors, positive events, affect, physical symptoms, and purposefulness. The current study thus provided one of the initial investigations to examine purposefulness at the daily level (see also Kiang, 2012), and in turn examined both between-person (i.e., average across days) and within-person purposefulness as moderators. Between-person purposefulness thus provides the closer approximation to the existing literature on sense of purpose, insofar that it reflects the tendency to be more goal-
oriented across days. The current study though allowed comparisons of between- and within-person effects for purposefulness, although given the novelty of this opportunity, we did not make differing predictions for each.

Based on previous research, prior to the pandemic, one would predict that purposefulness would moderate the influence of daily stressor occurrence on daily negative affect and physical symptoms (Hill et al., 2018). Moreover, purposeful individuals should report less change in positive affect in response to daily positive events (Hill et al., 2020). However, the current context presents a unique opportunity to test the boundary conditions of these associations, insofar that we can examine whether feeling purposeful still mitigates physical and affective reactivity to daily events during a time when people may be limited in their pursuit of meaningful activities and their broader life direction. Portions of this dataset have been used to examine age differences in stressor and positive event occurrence (Author Citation), age differences in social support (Author Citation), and have been combined with additional data to understand whether people expect to be purposeful (Author Citation). However, this paper constitutes the first investigation into whether purposefulness influences how people reacted to daily events during the wake of COVID-19.

Methods

Participants

Participants (total N = 831) aged 18 and older from the U.S. and Canada were recruited through news outlets, social media, community organizations, and institutions (e.g., local hospital) for an online study about COVID-19. The current study was approved by the ethics board at [redacted]. Participants completed a minimum of 4 out of 7 daily surveys in the time between March 18th and April 26th, 2020. Five participants had to be excluded due to missing
values on key variables resulting in an analytic sample of n = 826. No other exclusions were made for the current analyses, and the sample size reflects all individuals who were willing to participate during roughly the first month of the widespread pandemic response in North America. Given that participants were sampled across the U.S. and Canada, participants differed widely regarding the extent of imposed restrictions; paired with the time-varying nature of these restrictions, we were unable to account for these differences in the analyses. However, by the end of April, most places were experiencing significant restrictions in daily life. The current sample size is much larger than past work examining daily sense of purpose (Kiang, 2012), and thus constitutes one of the largest to date to examine purposefulness in daily data. Participants were on average 45.65 years old (SD = 16.31, min = 18, max = 91) and 86.3% of the sample self-identified as female. Over half the sample (67.8%) had college degrees.

**Procedure and Measures of Interest**

Participants completed a baseline questionnaire before starting the daily survey, which did not assess sense of purpose. Therefore, our focus in the current study is on the daily assessments. At 7 PM local time for seven consecutive days, participants received an email prompt with a link to a survey about their thoughts, feelings, and activities that day.

*Daily Affect.* Participants completed affect measures based on the items used in previous daily studies (Charles, Mogle, Leger, & Almeida, 2019; Mroczek & Kolarz, 1998), in which they were asked how much each word described how they felt today. Daily negative affect was calculated as an average of seven items each day (e.g., anxious, sad, frustrated; reliability: $R_{between-person} = .98$, $R_{within-person} = .74$). Daily positive affect was calculated as the average of eight items each day (e.g., happy, confident, calm; reliability: $R_{between-person} = .99$, $R_{within-person} = .85$). Responses were made on a sliding scale from 0 (not at all) to 100 (extremely).
Daily Purposefulness. Participants also completed a single item asking them how “purposeful” they felt that day, using a 0 to 100 scale. This item was included at the end of the affect assessment.

Daily Stressors. Participants were asked to report on whether (yes or no) eight different stressful events happened to them that day. Events were chosen to capture those employed in typical daily stress surveys (e.g., “argument, conflict, or disagreement”, “family or home stress”, “work or school stress”; Almeida, Wethington, & Kessler, 2002; Bolger, DeLongis, Kessler, & Schilling, 1989) as well as ones potentially more salient during the COVID-19 context (e.g., “traffic or transportation stress”, “financial problem”). Participants also were allowed to choose “other stressful event” and write in any event they felt was stressful. On average, participants reported 0.94 stressors per day (SD = 1.03). The observed scale ranged from 0 (no stressor occurred) to 7 (domains with stressors reported).

Daily Positive Events. Participants also were asked to report whether (yes or no) seven different positive events happened to them that day (Sin & Almeida, 2018). Events again included ones commonly employed in daily studies (“positive social interaction, in-person”, “positive event at work, school, or volunteer position”) as well as ones potentially more salient during the COVID-19 context (“positive social interaction, remote”, “spent time enjoying or viewing nature”), and again, participants were allowed to write in any other positive event they wanted. Participants reported a mean of 2.48 positive events per day (SD = 1.49, range 0-7).

Daily Physical Symptoms. Participants were asked to indicate which of 30 different physical symptoms they had experienced that day. The symptom checklist was adapted from past work (Leger, Charles, Ayanian, & Almeida, 2015), and included a broad array of symptoms ranging from more benign ailments (headache, backache, allergies) to more problematic ones
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(rapid heart beat, chest pain/tightness, shortness of breath). The mean number of physical symptoms reported was 2.34 (SD = 2.41) with a range from 0 to 21 physical symptoms.

**Analytic Plan**

Main hypotheses were tested using multilevel models with days (Level 1) nested within participants (Level 2). Daily positive and negative affect, and daily number of physical symptoms were predicted by the number of positive events, number of stressors, daily purpose, and covariates (education, age, gender, race, and study day centered on the first day of data collection). Continuous level 1 variables were person-mean centered and continuous level 2 variables grand-mean centered. Person-means of level 1 variables were entered as level 2 variables to examine trait levels of purpose, number of positive events, and stressors. Separate models for reactivity to positive events and stressors were computed. Reactivity to positive events and stressors were defined as the within-person relationship between the number of positive events or stressors and the dependent variable (e.g., difference in affect on a day with more compared to fewer positive events). To examine whether purpose moderated reactivity to positive events and stressors, interaction terms between purpose and both number of positive events and stressor occurrence were included. Random slopes for study day and purpose were included. To facilitate model convergence, between- and within-person variables for purpose were standardized to have a SD of 1.

**Results**

Only half of the variance in daily purposefulness (ICC = .50) was attributable to between-person differences, suggesting that within-person fluctuations in purposefulness from day-to-day are valuable to consider. Table 1 presents the between- (above diagonal) and within-person (below diagonal) correlations for the measures of interest. As expected, people with higher
average ratings of daily purpose generally reported more positive affect, less negative affect, and fewer physical symptoms. Moreover, purposeful individuals reported more positive events in general, but fewer days that involved a stressor. Such findings lend validity to the use of the single-item purposefulness measure.

It is worth noting that the associations between purposefulness and positive affect were higher than typical. Partial correlations were conducted to examine their distinction at between- and person-levels, using the non-affect variables. At the between-person level, purposefulness remained significantly associated with positive events ($r = .14, p < .001$) and number of stressors ($r = .13, p < .001$), but not physical symptoms ($r = -0.03, p = .463$). At the within-person level, purposefulness remained significantly associated with positive events ($r = .07, p < .001$) and physical symptoms ($r = -.05, p < .001$). The within-person association actually flipped with respect to number of stressors ($r = -.05, p < .001$), though it was modest in magnitude. These findings suggest some distinction between purposefulness and positive affect.

**Multilevel Models**

Table 2 presents the findings for the multilevel models predicting daily positive affect, daily negative affect, and daily physical symptoms for positive events. First, it is worth noting that purposefulness retained significant between- and within-person associations with all three outcomes, even when accounting for demographic factors and daily event measures. Second, the number of positive daily events predicted more positive affect and less negative affect, but only held a weak positive association with physical symptoms at the within-person level and no between-person association. Table 3 presents the findings for the same multilevel models with daily stressors. When participants reported a greater number of stressors during a day, they tended to report less positive affect, more negative affect, and more physical symptoms.
Of central interest to the current study though are the interactions involved between purposefulness and daily events. Furthermore, between-person purposefulness did interact with number of positive events to predict both daily positive affect and daily negative affect. The moderation effects for positive events reflect the expected directionality, insofar that purposeful individuals appeared to respond less to daily positive events (Figure 1a and 1b). When predicting daily positive affect with number of positive events, the simple slope for those people scoring one standard deviation higher than the mean on between-person purposefulness was still significant but weaker in magnitude than for participants scoring one standard deviation below the mean ($b = 1.73$ versus $2.56$, both $ps < .01$). The same pattern held for number of positive events predicting daily negative affect ($-1.26$ versus $-2.22$, both $ps < .01$). In sum, purposeful individuals still reported increases in positive affect when they experienced more positive events, and less negative affect; however, these increases were more mitigated than for those lower on purposefulness.

Regarding daily stressors, only between-person purposefulness interacted with number of stressors to predict positive affect but not the other daily outcomes. Counter to expectations, though, people higher in purposefulness had greater reductions in positive affect when stressors occurred (Figure 1c). People one standard deviation lower than the mean in between-person purposefulness had a significant but weaker relationship between number of stressors and daily positive affect, compared to people one standard deviation higher than the mean ($b = -2.30$ vs. $-3.15$, both $ps < .01$).

**Discussion**

The current study investigated the potential role of feeling purposeful on emotional responses to daily events during the COVID-19 pandemic. Previous work has suggested that
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sense of purpose may be linked to less reactivity to daily events (Hill et al., 2018; Hill et al., 2020), and in the wake of COVID, the current findings suggest a more nuanced role for purposefulness as a mitigator of daily effects. Overall, greater purposefulness, at both the between- and within-person level, was associated with more positive affect, but less negative affect and physical symptoms in daily life. For positive events, between-person purposefulness interacted with event occurrence to predict both daily positive and negative affect. Both of these interactions were in the expected form, such that positive events held less influence on daily affective well-being for those higher on purposefulness. With respect to daily stressors, however, purposefulness interacted with stressor occurrence, insofar that purposeful individuals experienced greater reductions in positive affect on stressful days relative to less purposeful people. We discuss below the implications for purpose research regarding the main effects, significant and non-significant interaction effects, and implications for purposefulness and health during uncertain times.

**Purposefulness and Daily Life**

One central finding of the current research is that sense of purpose remains an important factor for daily affective and physical well-being even in times of crisis. Even during some of the most turbulent weeks in the North American response to COVID-19, purposefulness predicted who experienced more positive affect, less negative affect, and fewer physical symptoms from one day to the next. These findings even hold when accounting for demographic factors and daily events, and these main effects were consistent for purposefulness at both the within-person and between-person levels. Such findings extend an accruing literature linking sense of purpose to daily affect (Hill et al., 2018; Hill et al., 2020; Kiang, 2012) and a more nascent literature linking it with daily physical well-being (Hill et al., 2018). As such, these findings continue to
locate purposefulness as a central individual difference worth consideration for health psychologists (Ryff, 2014).

In contrast to that past work, these findings held when using a daily single-item assessment for sense of purpose, rather than more traditional trait-like measures for sense of purpose. As such, the current study provides a valuable advance more broadly in terms of purpose measurement, insofar that it demonstrates the potential value of capturing purposefulness as it varies from one day to the next. Importantly, we found that half of the variance in daily purposefulness was due to within-person fluctuations across time. Future work could examine day-to-day factors (e.g., engagement in meaningful activities) that contribute to daily purposefulness. Indeed, the current measure allowed participants to define “purposeful” without necessarily making a connection to their broader life goals. Thus, it would be of interest to consider which types of activities influenced participants’ beliefs that they had been more purposeful that day.

Moreover, it is worth noting that the single-item assessment of purposefulness was included in the same section as the daily affect items, using the same format and directions. This survey administration decision likely serves to partially explain the high between-person association for purposefulness and positive affect, which was much larger in magnitude than evidenced in past work with sense of purpose and trait positive affect (Burrow & Hill, 2011; Zika & Chamberlain, 1992). However, the partial correlation analyses do suggest the two are somewhat distinct at between- and within-person levels. A limitation of the current work though was the lack of ability to compare trait and daily measures, which hinders our ability to consider whether the current measurement approach exacerbated the magnitude of associations.
Given the nascent literature on daily purpose, future research is needed to understand what is being captured by daily purposefulness. From the perspective of sense of purpose as a personality trait (e.g., Pfund, 2020), it may be the case that purposefulness in the current study is capturing more of the affective element rather than the behavioral or cognitive components of the trait. Another framework on purpose (McKnight & Kashdan, 2009) emphasizes that individuals can differ in the extent to which their purpose is (a) broader or narrower in its scope of influence on an individual’s life, (b) stronger or weaker in the strength of its influence, and (c) something about which the individual is more or less aware and is salient to explicit action. This perspective suggests that strength and scope are likely agents on personal well-being. Accordingly, people who report greater purposefulness on the end-of-day surveys may be reflecting upon the fact their guiding aims impacted several events that day, or that they felt a stronger motivation and direction that day. Future qualitative research may be needed to ask people which of these aspects of purposeful living are being captured in the daily reports. Ultimately, researchers will need to develop daily measures that better capture the three components of trait sense of purpose and/or of purposeful living, in order to better understand what is leading to the strong associations between purposefulness and positive affect.

**Interactions between Purposefulness and Daily Events**

Despite this imprecision in measurement, it is worth noting that several current findings align with past work with trait purpose measures, including the associations with physical symptoms. Moreover, the current research replicates past work in showing that purposeful individuals tend to report less of an increase in positive affect in response to daily positive events (Hill et al., 2020). Of interest, this work extends the previous study by showing that purposefulness even mitigated changes in negative affect during positive event days. These
findings may suggest that purposeful individuals may be less reactive even to positive events, perhaps in part because they view their future as having more positive events, given they hold a lifelong aim that guides them to engage in personally meaningful activities (Damon et al., 2003). Such an interpretation again aligns with the close connection between sense of purpose and hope found in past literature (Bronk et al., 2009). If true, it may speak to an ability for purposeful individuals to still expect such opportunities even in the face of the pandemic.

It is interesting then to consider that purposefulness did not moderate the influence of stressors on daily well-being in the expected directions. One possible explanation is the change in measurement for sense of purpose, as the current study asked people simply to report on their purposefulness each day and not on their sense of direction in life. This distinction may be important, given that perceiving a life path may help people realize that their daily stressors are not pushing them off this path, and as such, having a broader purpose helps to reduce their stressor reactivity (Hill et al., 2018). Again, future research is needed to examine the extent to which asking about purposefulness differs from other approaches to measuring sense of purpose in daily life.

However, another possibility is that the pandemic context may have drastically altered the participants’ perception of a stable environment. For one, participants in the current study reported a much greater frequency of daily stressors relative to that past purpose work (Hill et al., 2018); one interpretation then is, during the pandemic, people may be more overwhelmed by consistent stressors, which hinders the ability for purposefulness to help them stay the course. Another point is that it may be particularly difficult for individuals to perceive future opportunities for their goal-directed actions, when the environments that allow for goal pursuit are shifting (Burrow & Hill, 2020). The implications of this changing environment may help
explain the unexpected potential for purposefulness to exacerbate the impact of stressors on positive affect in the current findings. Sense of purpose is associated with greater environmental mastery (Ryff, 1989; Ryff & Keyes, 1995), which may help explain why purposeful individuals tend to report a greater ability to overcome obstacles in their lives (Bronk et al., 2009). If these environments are shifting though, daily stressors may not only be more difficult to overcome, but also may serve as a reminder that the previously available resources are no longer afforded to purposeful people. As such, daily stressors could impact purposeful individuals more because they present occasions for reflection on their lost mastery and control of their previous environments. Although speculative, it would be valuable for future research to consider how life-altering events, like pandemics, may hold greater consequence for individuals who felt they had a direction in their pre-event lives.

**Implications for Purposefulness in Uncertain Times**

That said, purposefulness was associated, both between- and within-person, with fewer daily stressors. Though these associations were modest in nature, they too reflect a distinction from previous work, which found no association between daily stressor frequency and sense of purpose (Hill et al., 2018). Such findings may point to a unique benefit of being purposeful during COVID-19; during a time when some individuals may be overcome with unseen and unique stressors, being purposeful in the time of pandemic may help individuals avoid or adaptively minimize the threat of pandemic-related events on well-being. When asked to report on stress over the past weeks or months, purposeful individuals tend to report less perceived stress cross-sectionally (Scheier et al., 2006). One way of reconciling those findings with the work on daily stressors is that having a sense of purpose may guide individuals to reappraise their past circumstances. It is possible that the COVID-19 crisis is catalyzing this reappraisal
process on a more frequent, daily-level, insofar that purposeful individuals manage to report fewer personal stressors even when navigating the complicated response to the pandemic. In a time when everyone is seemingly inundated with the potential for stress, purposeful individuals are actually reporting fewer stressors and less negative affect each day. These findings may provide further insight into how purpose can be thought of as a broader motivational mindset (Burrow, Hill, & Sumner, 2016), which helps people even during troubling times.

On the other side of daily life, it perhaps may seem problematic to reduce affective reactions to positive events, during a time when we may wish to accentuate any positives. That said, during a pandemic, avoiding being overly excited by positive events may too provide benefits to individuals. When in a frequently shifting environment and news cycle, it may be difficult to continue to stay the course toward life goals, if one experiences robust fluctuations in affect in either direction. Put differently, when everything seems to be changing, as was the case for most people during the first weeks of the pandemic response, it may be more important than ever to avoid overreacting, either negatively or positively.

**Limitations and Conclusion**

These ideas are largely speculative given that we have limited background on which to couch the current investigations into how individual differences and day-to-day fluctuations in purposefulness play out during times of pandemic. However, the notion that having a purpose and direction is beneficial for dealing with crises has resonated since the writings of Frankl (1959). Another limitation is the inability to compare the current purposefulness assessments with previously validated trait measures, and future research should test the potential measurement impacts noted above by including more “trait-like” measures in addition to the daily one. The inclusion of trait measures for sense of purpose also would facilitate the
understanding of directionality in these analyses, beyond the focus on between-subjects differences in average purposefulness across days; however, it is worth noting that past work does suggest trait purpose mitigates the effect of positive events on next-day positive affect (Hill et al., 2020), suggesting purposefulness likely holds prospective influence. Similarly, the current study did not collect information on the content of participants’ purposes for life, or if they felt they had one. This qualitative information would provide a valuable supplement, as it would provide insight into the extent to which one’s purpose in life was disrupted by the pandemic and its corresponding public policy response. Finally, though collecting daily data on purpose is a significant advance in itself to the field, it would be valuable to have more even more frequent assessments for the current measures of interest, in order to better understand the role of purposefulness on immediate reactivity to daily events. In doing so, additional work is needed to understand the interpretation of these measures across participant groups, particularly given the homogeneity in the current sample on some demographics including gender.

These caveats aside, the current study provides valuable insight into the role of purposefulness for daily well-being both in the COVID-19 context and beyond. Even during these challenging times, purposeful individuals report better daily well-being and physical health, and report fewer days with a stressor. Moreover, purposefulness appears to play a role in shaping people’s response to positive events, by mitigating participants’ changes in both positive and negative affect. In so doing, perhaps purposefulness helps individuals to see a path ahead to expect a more positive future, even during some of the most distressing times. That said, these findings also underscore potential consequences to being purposeful, pointing to the need for additional work on the types of obstacles that can, and cannot be overcome by purposeful people.
References


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Table 1

Descriptive statistics, intraclass correlations, and within- and between-person correlations among daily variables

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<th>Variables</th>
<th>Descriptives</th>
<th>Correlations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Purposefulness</td>
<td>50.35</td>
<td>28.26</td>
</tr>
<tr>
<td>No. of daily physical</td>
<td>2.34</td>
<td>2.41</td>
</tr>
<tr>
<td>symptoms</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive affect (PA)</td>
<td>47.43</td>
<td>21.84</td>
</tr>
<tr>
<td>Negative affect (NA)</td>
<td>25.16</td>
<td>18.7</td>
</tr>
<tr>
<td>No. of positive events</td>
<td>2.48</td>
<td>1.49</td>
</tr>
<tr>
<td>No. of stressors</td>
<td>0.94</td>
<td>1.03</td>
</tr>
</tbody>
</table>

Note. Values above the diagonal are between-person correlations, values below the diagonal are within-person correlations, and bolded values along the diagonal are intraclass correlations. For correlations: *p < .05, **p < .01, ***p < .001
### Table 2

**Multilevel models for purposefulness and positive events as predictors of daily affect and physical symptoms**

<table>
<thead>
<tr>
<th>Fixed Effects</th>
<th>Daily positive affect</th>
<th>Daily negative affect</th>
<th>Daily physical symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Estimate (SE)</td>
<td>( \eta^2 )</td>
<td>Estimate (SE)</td>
</tr>
<tr>
<td>Intercept</td>
<td>46.47 (1.44)*****</td>
<td>28.86 (1.96)*****</td>
<td>2.24 (0.29)*****</td>
</tr>
<tr>
<td>Gender (Women)</td>
<td>-2.29 (1.05)*</td>
<td>.003</td>
<td>1.85 (1.44)</td>
</tr>
<tr>
<td>Gender (Other)</td>
<td>-7.63 (3.49)*</td>
<td>.003</td>
<td>3.77 (4.54)</td>
</tr>
<tr>
<td>Education (college degree)</td>
<td>0.57 (0.75)</td>
<td>.001</td>
<td>-1.73 (1.02)</td>
</tr>
<tr>
<td>Race (White)</td>
<td>0.70 (1.08)</td>
<td>.000</td>
<td>-1.05 (1.47)</td>
</tr>
<tr>
<td>Age</td>
<td>-0.02 (0.02)</td>
<td>.000</td>
<td>-0.05 (0.03)</td>
</tr>
<tr>
<td>Study day</td>
<td>0.68 (0.08)*****</td>
<td>.009</td>
<td>-1.01 (0.10)*****</td>
</tr>
<tr>
<td>Purposefulness (wp)</td>
<td>5.86 (0.19)*****</td>
<td>.147</td>
<td>-2.31 (0.20)*****</td>
</tr>
<tr>
<td>Purposefulness (bp)</td>
<td>13.31 (0.42)*****</td>
<td>.390</td>
<td>-3.98 (0.58)*****</td>
</tr>
<tr>
<td>Number of pos. events (bp)</td>
<td>3.11 (0.37)*****</td>
<td>.044</td>
<td>-2.53 (0.50)*****</td>
</tr>
<tr>
<td>Number of pos. events (wp)</td>
<td>2.14 (0.15)*****</td>
<td>.147</td>
<td>-1.67 (0.17)*****</td>
</tr>
<tr>
<td>Number of pos. events (wp) x purposefulness (wp)</td>
<td>-0.02 (0.15)</td>
<td>.000</td>
<td>0.21 (0.17)</td>
</tr>
<tr>
<td>Number of pos. events (wp) x purposefulness (bp)</td>
<td>-0.40 (0.16)****</td>
<td>.001</td>
<td>0.47 (0.18)***</td>
</tr>
<tr>
<td>Model – ( R^2 )</td>
<td>.610</td>
<td></td>
<td>.158</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Random Effects</th>
<th>SD</th>
<th>SD</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>9.86***</td>
<td>13.47***</td>
<td>2.13***</td>
</tr>
<tr>
<td>Purpose (wp)</td>
<td>2.99***</td>
<td>2.70***</td>
<td>0.24***</td>
</tr>
<tr>
<td>Study day</td>
<td>1.11***</td>
<td>1.62***</td>
<td>0.22***</td>
</tr>
<tr>
<td>Residual</td>
<td>9.27</td>
<td>10.45</td>
<td>1.11</td>
</tr>
</tbody>
</table>

*Note.* \( N = 826 \), Estimates represent unstandardized regression coefficients, bp = between-person variable (person-mean), wp = within-person variable (person-centered predictor), purposefulness was entered as a standardized predictor to avoid large differences in variance between predictors, \( \eta^2 \) represent semi-partial \( R^2 \) calculated using approach described by Nakagawa and Schielzeth (2013).

* \( p < .05 \), ** \( p < .01 \), *** \( p < .001 \)
### Table 3

*Multilevel models for purposefulness and stressors as predictors of daily affect and physical symptoms*

<table>
<thead>
<tr>
<th>Fixed Effects</th>
<th>Daily positive affect</th>
<th></th>
<th></th>
<th>Daily negative affect</th>
<th></th>
<th></th>
<th>Daily physical symptoms</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Estimate (SE)</td>
<td>η²</td>
<td>Estimate (SE)</td>
<td>η²</td>
<td>Estimate (SE)</td>
<td>η²</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
<td>46.46 (1.44)***</td>
<td>.001</td>
<td>28.69 (1.83)***</td>
<td>.000</td>
<td>2.21 (0.26)***</td>
<td>.002</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender (Women)</td>
<td>-1.43 (1.06)</td>
<td>.005</td>
<td>0.61 (1.35)</td>
<td>.000</td>
<td>0.31 (0.19)</td>
<td>.002</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender (Other)</td>
<td>-9.39 (3.49)***</td>
<td>.002</td>
<td>5.02 (4.24)</td>
<td>.000</td>
<td>0.95 (0.61)</td>
<td>.002</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education (college degree)</td>
<td>1.10 (0.74)</td>
<td>.005</td>
<td>-2.14 (0.95)*</td>
<td>.004</td>
<td>-0.07 (0.14)</td>
<td>.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Race (White)</td>
<td>1.03 (1.08)</td>
<td>.002</td>
<td>-1.29 (1.38)</td>
<td>.001</td>
<td>0.16 (0.20)</td>
<td>.001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>-0.01 (0.02)</td>
<td>.002</td>
<td>-0.05 (0.03)</td>
<td>.002</td>
<td>0.00 (0.00)</td>
<td>.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Study day</td>
<td>0.22 (0.08)***</td>
<td>.003</td>
<td>-0.44 (0.09)***</td>
<td>.003</td>
<td>-0.09 (0.01)***</td>
<td>.005</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Stressors (bp)</td>
<td>-4.29 (0.54)***</td>
<td>.039</td>
<td>8.13 (0.68)***</td>
<td>.092</td>
<td>1.38 (0.10)***</td>
<td>.144</td>
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</tr>
<tr>
<td>Number of Stressors (wp)</td>
<td>-2.72 (0.18)***</td>
<td>.023</td>
<td>4.57 (0.19)***</td>
<td>.045</td>
<td>0.19 (0.02)***</td>
<td>.010</td>
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<tr>
<td>Purposefulness (wp)</td>
<td>6.11 (0.18)***</td>
<td>.019</td>
<td>-2.32 (0.18)***</td>
<td>.067</td>
<td>-0.12 (0.02)***</td>
<td>.003</td>
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</tr>
<tr>
<td>Purposefulness (bp)</td>
<td>14.76 (0.36)***</td>
<td>.518</td>
<td>-4.58 (0.46)***</td>
<td>.067</td>
<td>-0.38 (0.07)***</td>
<td>.028</td>
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</tr>
<tr>
<td>Number of stressors (wp) x purposefulness (wp)</td>
<td>0.13 (0.18)</td>
<td>.000</td>
<td>0.03 (0.20)</td>
<td>.000</td>
<td>-0.02 (0.02)</td>
<td>.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of stressors (wp) x purposefulness (bp)</td>
<td>-0.43 (0.18)***</td>
<td>.001</td>
<td>0.04 (0.19)</td>
<td>.000</td>
<td>-0.03 (0.02)</td>
<td>.000</td>
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<tr>
<td>Model - $R^2$</td>
<td></td>
<td>.610</td>
<td></td>
<td>.247</td>
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<td>.204</td>
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**Random Effects**

<table>
<thead>
<tr>
<th></th>
<th>SD</th>
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</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>9.84***</td>
<td>12.65***</td>
<td>1.92***</td>
<td></td>
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</tr>
<tr>
<td>Purpose (wp)</td>
<td>2.96***</td>
<td>2.42***</td>
<td>0.24***</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Study day</td>
<td>1.18***</td>
<td>1.61***</td>
<td>0.23***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residual</td>
<td>9.20</td>
<td>9.94</td>
<td>1.09</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note. N = 826, Estimates represent unstandardized regression coefficients, bp = between-person variable (person-mean), wp = within-person variable (person-centered predictor), purposefulness was entered as a standardized predictor to avoid large differences in variance between predictors, η² represent semi-partial $R^2$ calculated using approach described by Nakagawa and Schielzeth (2013). *p < .05, **p < .01, ***p < .001*
Figure 1

Interaction plots for the differential associations for between-person purposefulness and daily affect relative to the number of daily positive events and stressors.

Note. This figure depicts the predicted values of positive affect (PA) and negative affect (NA). Purposefulness is depicted at the mean of 50.35 and ± 1 SD of 28.26 (between-person). Daily positive events and stressors are centered at the person-means. For Figure 1A: \( b_{-1SD} = 1.73 \) and \( b_{+1SD} = 2.56 \); for 1B: \( b_{-1SD} = -1.26 \) and \( b_{+1SD} = -2.22 \); for 1C: \( b_{-1SD} = -2.30 \) and \( b_{+1SD} = -3.15 \). All simple slopes shown are significantly different from zero.